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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/648,445
Filing Date: August 27, 2003
Appellant(s): BEAN ET AL.

Edmond A. DeFrank (Reg. No. 37,814)
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/01/2009 appealing from the Office action mailed 07/01/2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

(**8) Evidence Relied Upon**

| | | |
|---|---|---|
| 2003/0193563 | Lee et al. | 10-2003 |
| 2004/0036778 | Vernier, Frederic | 02-2004 |
| 6,480,624 | Horie et al. | 11-2002 |

JP 04313949 A YONEYAMA, JUICHI 11-1992

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 - 2, 12 - 13, 24 - 25, and 27 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US patent No. 2003/0193593) in view of Vernier (US patent No. 2004/0036778).

Regarding **claim 1,** Lee et al. discloses a method of selectively reading less than all information available at an output of an image sensor for which member-pixels of a subset of an entire set of pixels are individually addressable (figures 1 - 3 and Paragraph 0016), the method comprising: sampling information, at the output of the image sensor, representing targeted member-pixel of the subset without having to read information representing the entire set of pixels (figures 1 - 3 and Paragraph 0016 *et seq.*); and selectively reading information, at the output of the image sensor, representing another one or more but fewer than all member pixels of the entire set based upon the sampling information without having to read information representing all

pixels on the image sensor (figures 1 - 3 and Paragraph 0016 *et seq.*), all pixels on the image sensor, wherein each pixel can be individually read, independently of other pixels (Lee et al. uses a CMOS imager and it is inherent that CMOS imagers have a property of being able to reading any single pixel separately; title and figures 2 – 5 “X-Y ADDRESSABLE IMAGER”); accessing a first set of sampling photo sensing pixels of the image sensor and accessing a second set of non-sampling pixels of the image sensor, wherein the first and the second set of pixels have different physical circuitry addressing and control line going to them, respectively (figure 2 and paragraph 0015 circuits 23 and 26 reading the sub-window image; figure 3 and paragraph 0016 circuits 34 and 36 reading the sub-window image whereas imager 12 can be read as a whole also using address/shift registers in figures 2 - 3).

However, Lee et al. fails to disclose organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions. Vernier, on the other hand teaches organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions.

More specifically, Vernier teaches organizing the entire set of pixels into dynamic and static partitions (figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Vernier with the teachings of Lee et al. to speed up and reduce cost and time required of the photographing system by ignoring stationary portions of images after the initial image capture.

Regarding **claim 2**, as mentioned above in the discussion of claim 1, Lee et al. in view of Vernier teach all of the limitations of the parent claim. Additionally, Lee et al. teaches the reading information, at the output of the image sensor, representing member-pixels of the entire set that are located within a predetermined area adjacent to or surrounding the targeted member-pixel of the subset (figures 1 - 3 and Paragraph 0016 *et seq.*).

Regarding **claim 12**, as mentioned above in the discussion of claim 1, Lee et al. in view of Vernier teach all of the limitations of the parent claim. Additionally, Lee et al. teaches the image sensor is **one of a** CCD image sensor for which the subset is smaller than the entire set **and** a CMOS image sensor for which the subset is the same as the entire set (column 3, lines 32 *et seq.* figures 15A – 15F and 20A – 20B, column 18 lines 20 – 26; note: only one of a CCD or a CMOS is required because of the claim wording).

Regarding **claim 13,** Lee et al. discloses a method of selectively reading data available at an output of an image sensor, the method comprising: reading less than all data available at an output of an image sensor for which selected ones but not all of the entire set of pixels are individually addressable (figures 1 - 3 and Paragraph 0016 *et seq.*), wherein each pixel can be individually read, independently of other pixels (Lee et al. uses a CMOS imager and it is inherent that CMOS imagers have a property of being able to reading any single pixel separately; title and figures 2 – 5 "X-Y ADDRESSABLE IMAGER"); accessing a first set of sampling photo-sensing pixels of the image sensor and accessing a second set of non-sampling pixels of the image sensor, wherein the first and the second set of pixels have different physical circuitry addressing and control lines going to them, respectively (figure 2 and paragraph 0015 circuits 23 and 26 reading the sub-window image; figure 3 and paragraph 0016 circuits 34 and 36 reading the sub-window image whereas imager 12 can be read as a whole also using address/shift registers in figures 2 - 3).

However, Lee et al. fails to disclose organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions. Vernier, on the other hand teaches organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions.

More specifically, Vernier teaches organizing the entire set of pixels into dynamic and static partitions (figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Vernier with the teachings of Lee et al.

to speed up and reduce cost and time required of the photographing system by ignoring stationary portions of images after the initial image capture.

Regarding **claim 24,** Lee et al. discloses a digital camera (it is inherent this kind of CMOS imagers are used in cameras and it is inherent that the method for correcting pixels can be implemented in the camera for reduction of size and ease of use) comprising: a pixel-differentiated image sensor for which member-pixels of a subset of the entire set of pixels are individually addressable (figures 1 - 3 and Paragraph 0016 *et seq.*), the image sensor being controllable to read less than all of the pixels without having to read all of the pixels (figures 1 - 3 and Paragraph 0016 *et seq.*); and a processor operable to obtain sampling information from a targeted member-pixel of the subset without having to read information from the entire set of pixels (figures 1 - 3 and Paragraph 0016 *et seq.*); and selectively obtain information from another one or more but fewer than all member pixels of the entire set based upon the sampling information without having to read all of the pixels on the image sensor (figures 1 - 3 and Paragraph 0016 *et seq.*), wherein each pixel can be individually read, independently of other pixels (Lee et al. uses a CMOS imager and it is inherent that CMOS imagers have a property of being able to reading any single pixel separately; title and figures 2 – 5 “X-Y ADDRESSABLE IMAGER”); a first set of sampling photo-sensing pixels of the Image sensor; and a second set of non-sampling pixels of the image sensor; wherein the first and the second set of pixels have different physical circuitry addressing and, control lines. going to them, respectively (figure 2 and paragraph 0015 circuits 23 and 26

reading the sub-window image; figure 3 and paragraph 0016 circuits 34 and 36 reading the sub-window image whereas imager 12 can be read as a whole also using address/shift registers in figures 2 - 3).

However, Lee et al. fails to disclose organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions. Vernier, on the other hand teaches organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions.

More specifically, Vernier teaches organizing the entire set of pixels into dynamic and static partitions (figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of

images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Vernier with the teachings of Lee et al. to speed up and reduce cost and time required of the photographing system by ignoring stationary portions of images after the initial image capture.

Regarding **claim 25**, as mentioned above in the discussion of claim 24, Lee et al. in view of Vernier teach all of the limitations of the parent claim. Additionally, Lee et al. teaches the processor is operable to selectively obtain information from member-pixels of the entire set that are located within a predetermined area adjacent to or surrounding the targeted member-pixel of the subset (figures 1 - 3 and Paragraph 0016 *et seq.*).

Regarding **claim 27,** Lee et al. discloses a digital camera (it is inherent this kind of CMOS imagers are used in cameras and it is inherent that the method for correcting pixels can be implemented in the camera for reduction of size and ease of use) comprising: a pixel-differentiated image sensor for which selected ones of the entire set of pixels are individually addressable (figures 1 - 3 and Paragraph 0016 *et seq.*), the image sensor being organized into a matrix of partitions (figures 1 - 3 and Paragraph 0016 *et seq.*), each partition including a member-pixel of the subset referred to as a sampling pixel (figures 1 - 3 and Paragraph 0016 *et seq.*); and a processor operable to obtain sampling data from a sampling pixel without having to obtain information from the

other pixels in the corresponding partition (figures 1 - 3 and Paragraph 0016 *et seq.*), and selectively obtain data from at least the entire corresponding partition but fewer than all of the partitions depending upon the sampled-data without having to obtain information from all of the pixels on the image sensor (figures 1 - 3 and Paragraph 0016 *et seq.*), wherein each pixel can be individually read, independently of other pixels (Lee et al. uses a CMOS imager and it is inherent that CMOS imagers have a property of being able to reading any single pixel separately; title and figures 2 – 5 “X-Y ADDRESSABLE IMAGER”); access a first set of sampling photo-sensing pixels of tile image sensor and access a second set of non-sampling pixels of the image sensor, wherein the first; and the second set of pixels have different physical circuitry addressing and control lines going to them, respectively (figure 2 and paragraph 0015 circuits 23 and 26 reading the sub-window image; figure 3 and paragraph 0016 circuits 34 and 36 reading the sub-window image whereas imager 12 can be read as a whole also using address/shift registers in figures 2 - 3).

However, Lee et al. fails to disclose organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions. Vernier, on the other hand teaches organizing the entire set of pixels into dynamic and static partitions, each partition having multiple pixels; mapping one or more of the partitions to one or more of the member-pixels of the

subset, respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions.

More specifically, Vernier teaches organizing the entire set of pixels into dynamic and static partitions (figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Vernier with the teachings of Lee et al. to speed up and reduce cost and time required of the photographing system by ignoring stationary portions of images after the initial image capture.

Regarding **claim 28**, as mentioned above in the discussion of claim 27, Lee et al. in view of Vernier teach all of the limitations of the parent claim. Additionally, Lee et al. teaches the processor is operable to selectively obtain data from partitions located within a predetermined area adjacent to or surrounding the sampling pixel (figures 1 - 3 and Paragraph 0016 *et seq.*).

Claims 3 – 9, 14 – 20, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US patent No. 2003/0193593), in view of Vernier (US patent No. 2004/0036778), and further in view of YONEYAMA (JP 04313949 A).

Regarding **claims 3**, as mentioned above in the discussion of claim 2, Lee et al. in view of Vernier teach all of the limitations of the parent claims. However, Lee et al. in view of Vernier fail to disclose reading information, at the output of the image sensor, representing all member-pixels of the subset so as to generate a plurality of samples; handling the samples in a manner that preserves a relationship between each sample and corresponding member-pixel of the subset; and reading information, at the output of the image sensor, representing one or more of the partitions mapped to the member-pixels of the subset but not all of the partitions based upon the plurality of samples. YONEYAMA, on the other hand teaches reading information, at the output of the image sensor, representing all member-pixels of the subset so as to generate a plurality of samples; handling the samples in a manner that preserves a relationship between each sample and corresponding member-pixel of the subset; and reading information, at the output of the image sensor, representing one or more of the partitions mapped to the member-pixels of the subset but not all of the partitions based upon the plurality of samples.

More specifically, YONEYAMA teaches reading information, at the output of the image sensor, representing all member-pixels of the subset so as to generate a plurality of samples (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A,

B and C respectively); handling the samples in a manner that preserves a relationship between each sample and corresponding member-pixel of the subset (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively when combined with the teaching of Lee et al.); and reading information, at the output of the image sensor, representing one or more of the partitions mapped to the member-pixels of the subset but not all of the partitions based upon the plurality of samples (paragraph 0023).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of YONEYAMA with the teachings of Lee et al. in view of Vernier because in paragraph 0007 YONEYAMA teaches that the invention is used to obtain a wide dynamic range without being restricted by the dynamic range of light interception element of image sensor, so as to solve the problems of the known devices.

Regarding **claims 4**, as mentioned above in the discussion of claim 1, Lee et al. in view of Vernier teach all of the limitations of the parent claims. However, Lee et al. in view of Vernier fail to disclose determining if the sampling information exceeds a reference value; and reading information, at the output of the image sensor, representing the one or more but fewer than all member-pixels of the entire set if the sampling information exceeds the reference value. YONEYAMA, on the other hand teaches determining if the sampling information exceeds a reference value; and reading information, at the output of the image sensor, representing the one or more but fewer

than all member-pixels of the entire set if the sampling information exceeds the reference value.

More specifically, YONEYAMA teaches determining if the sampling information exceeds a reference value; and reading information, at the output of the image sensor, representing the one or more but fewer than all member-pixels of the entire set if the sampling information exceeds the reference value (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of YONEYAMA with the teachings of Lee et al. in view of Vernier because in paragraph 0007 YONEYAMA teaches that the invention is used to obtain a wide dynamic range without being restricted by the dynamic range of light interception element of image sensor, so as to solve the problems of the known devices.

Regarding **claims 5**, as mentioned above in the discussion of claim 4, Lee et al. in view of Vernier and in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches wherein the reference value represents one of a user-determined threshold or a saturation threshold for the targeted member-pixel of the subset (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively).

Regarding **claims 6**, as mentioned above in the discussion of claim 4, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches reading information, at the output of the image sensor, representing all member-pixels of the subset so as to generate a plurality of samples (figure 6 and paragraphs 0022 et seq.; picture elements A, B and C respectively), each member-pixel of the subset having a corresponding reference value, respectively (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$); applying the determining step to each of the samples (paragraph 0017; calculation in terms of standard value); and reading information, at the output of the image sensor, representing the one or more but fewer than all member-pixels of the entire set located within a predetermined area adjacent to or surrounding member-pixels for which the corresponding sample exceeds the respective reference value (paragraph 0023).

Regarding **claims 7**, as mentioned above in the discussion of claim 4, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches the sampling information is the current sampling information (figure 6 and paragraphs 0022 et seq.; one of $V_A$, $V_B$ AND $V_C$) and the reference value is a first reference value (figure 6 and paragraphs 0022 et seq.; one of $V_A$, $V_B$ AND $V_C$); and the method further comprises: taking the difference between the current sampling information and the first reference value (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$); and reading, at the output of the image

sensor, representing the one or more but fewer than all member-pixels of the entire set if the difference exceeds a second reference value (paragraph 0023).

Regarding **claims 8**, as mentioned above in the discussion of claim 7, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches wherein the first reference value is the previous sampling information (figure 6 and paragraphs 0022 et seq.; $V_A$).

Regarding **claims 9**, as mentioned above in the discussion of claim 7, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches setting the first reference value to be equal to the current sampling information if the difference exceeds the second reference value (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ are variable).

Regarding **claims 14**, as mentioned above in the discussion of claim 13, Lee et al. in view of Vernier teach all of the limitations of the parent claims. However, Lee et al. in view of Vernier fail to disclose organizing the image sensor into a matrix of partitions, each partition including a member-pixel of the subset referred to as a sampling pixel; selectively reading data from at least the entire corresponding partition but fewer than all of the partitions depending upon the sampled-data without having to read all of the pixels on the image sensor. YONEYAMA, on the other hand teaches organizing the image sensor into a matrix of partitions, each partition including a member-pixel of the

subset referred to as a sampling pixel; selectively reading data from at least the entire corresponding partition but fewer than all of the partitions depending upon the sampled-data without having to read all of the pixels on the image sensor.

More specifically, YONEYAMA teaches organizing the image sensor into a matrix of partitions, each partition including a member-pixel of the subset referred to as a sampling pixel (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively); selectively reading data from at least the entire corresponding partition but fewer than all of the partitions depending upon the sampled-data without having to read all of the pixels on the image sensor (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively when combined with the teaching of Lee et al.).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of YONEYAMA with the teachings of Lee et al. in view of Vernier because in paragraph 0007 YONEYAMA teaches that the invention is used to obtain a wide dynamic range without being restricted by the dynamic range of light interception element of image sensor, so as to solve the problems of the known devices.

Regarding **claims 15**, as mentioned above in the discussion of claim 14, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches reading data, at the output of the image sensor, representing partitions located within a predetermined area adjacent to or

surrounding the sampling pixel (figure 6 and paragraphs 0022 et seq.; picture elements A, B and C respectively).

Regarding **claims 16**, as mentioned above in the discussion of claim 14, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches determining If the sampled-data exceeds a reference value; and reading data, at the output of the image sensor, representing the one or more but fewer than all member-pixels of the entire set if the sampled-data exceeds the reference value (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively).

Regarding **claims 17**, as mentioned above in the discussion of claim 16, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches wherein the reference value represents a saturation threshold for the targeted member-pixel of the subset (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively).

Regarding **claims 18**, as mentioned above in the discussion of claim 16, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches the sampling data is the current sampling information (figure 6 and paragraphs 0022 et seq.; one of $V_A$, $V_B$ AND $V_C$) and

the reference value is a first reference value (figure 6 and paragraphs 0022 et seq.; one of $V_A$, $V_B$ AND $V_C$); and the method further comprises: taking the difference between the current sampling information and the first reference value (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$); and reading, at the output of the image sensor, representing the one or more but fewer than all member-pixels of the entire set if the difference exceeds a second reference value (paragraph 0023).

Regarding **claims 19**, as mentioned above in the discussion of claim 18, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches wherein the first reference value is the previous sampling information (figure 6 and paragraphs 0022 et seq.; $V_A$).

Regarding **claims 20**, as mentioned above in the discussion of claim 18, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. Additionally, YONEYAMA teaches setting the first reference value to be equal to the current sampling information if the difference exceeds the second reference value (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ are variable).

Regarding **claim 23**, as mentioned above in the discussion of claim 14, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claim. Additionally, Lee et al. teaches the image sensor is **one of a** CCD image sensor for which the subset is smaller than the entire set **and** a CMOS image sensor for

which the subset is the same as the entire set (column 3, lines 32 *et seq.* figures 15A – 15F and 20A – 20B, column 18 lines 20 – 26; note: only one of a CCD or a CMOS is required because of the claim wording).

Regarding **claims 26**, as mentioned above in the discussion of claim 25, Lee et al. in view of Vernier teach all of the limitations of the parent claims. However, Lee et al. in view of Vernier fail to disclose the processor is operable to read information from all member-pixels of the subset so as to generate a plurality Of samples; the processor further being operable to handle the samples in a manner that preserves a relationship between each sample and corresponding member-pixel of the subset, and read information from one or more of the partitions mapped to the member- pixels of the subset but not all of the partitions based upon the plurality of samples. YONEYAMA, on the other hand teaches the processor is operable to read information from all member-pixels of the subset so as to generate a plurality Of samples; the processor further being operable to handle the samples in a manner that preserves a relationship between each sample and corresponding member-pixel of the subset, and read information from one or more of the partitions mapped to the member- pixels of the subset but not all of the partitions based upon the plurality of samples.

More specifically, YONEYAMA teaches the processor is operable to read information from all member-pixels of the subset so as to generate a plurality Of samples (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively); the processor further being operable to handle the samples in a

manner that preserves a relationship between each sample and corresponding member-pixel of the subset (figure 6 and paragraphs 0022 et seq.; $V_A$, $V_B$ AND $V_C$ of picture elements A, B and C respectively when combined with the teaching of Lee et al.); and read information from one or more of the partitions mapped to the member-pixels of the subset but not all of the partitions based upon the plurality of samples (paragraph 0023).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of YONEYAMA with the teachings of Lee et al. in view of Vernier because in paragraph 0007 YONEYAMA teaches that the invention is used to obtain a wide dynamic range without being restricted by the dynamic range of light interception element of image sensor, so as to solve the problems of the known devices.

Claims 10 -11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US patent No. 2003/0193593), in view of Vernier (US patent No. 2004/0036778), and further in view of Horie et al. (US patent No. 6,480,624).

Regarding **claim 10**, as mentioned above in the discussion of claim 1, Lee et al. in view of Vernier teach all of the limitations of the parent claims. However, Lee et al. in view of Vernier fail to disclose that the method further comprises: measuring an elapsed time; reading information at the output of the image sensor representing all member-pixels of the subset if the elapsed time exceeds a predetermined amount. Horie et al., on the other hand teaches that method comprises: measuring an elapsed time; reading

information at the output of the image sensor representing all member-pixels of the subset if the elapsed time exceeds a predetermined amount.

More specifically, Horie et al. teaches that method comprises: measuring an elapsed time (column 8, lines 58 *et seq.*); reading information at the output of the image sensor representing all member-pixels of the subset if the elapsed time exceeds a predetermined amount (column 8, lines 58 *et seq.*).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Horie et al. with the teachings of Lee et al. in view of Vernier because in column 8, lines 58 *et seq.* Horie et al. teaches that the use of the time controlled image pickup will result exposure control, this will in turn result in a improved image.

Regarding **claim 11**, as mentioned above in the discussion of claim 10, Lee et al. in view of Vernier and in further view of Horie et al. teach all of the limitations of the parent claims. Additionally, Horie et al. teaches multiple instances of the elapsed time at the output of the image sensor representing all member-pixel of the subset can be measured in the next cycle of the image capture (column 8, lines 58 *et seq.*).

Claims 21 - 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US patent No. 2003/0193593), in view of Vernier (US patent No. 2004/0036778) in view of YONEYAMA (JP 04313949 A) further in view of Horie et al. (US patent No. 6,480,624).

Regarding **claim 21**, as mentioned above in the discussion of claim 14, Lee et al. in view of Vernier and further in view of YONEYAMA teach all of the limitations of the parent claims. However, Lee et al. in view of Vernier and further in view of YONEYAMA fail to disclose that the method further comprises: measuring an elapsed time; reading information at the output of the image sensor representing all member-pixels of the subset if the elapsed time exceeds a predetermined amount. Horie et al., on the other hand teaches that method comprises: measuring an elapsed time; reading information at the output of the image sensor representing all member-pixels of the subset if the elapsed time exceeds a predetermined amount.

More specifically, Horie et al. teaches that method comprises: measuring an elapsed time (column 8, lines 58 *et seq.*); reading information at the output of the image sensor representing all member-pixels of the subset if the elapsed time exceeds a predetermined amount (column 8, lines 58 *et seq.*).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Horie et al. with the teachings of Lee et al. in view of Vernier and further in view of YONEYAMA because in column 8, lines 58 *et seq.* Horie et al. teaches that the use of the time controlled image pickup will result exposure control, this will in turn result in a improved image.

Regarding **claim 22**, as mentioned above in the discussion of claim 21,Lee et al. in view of Vernier in view of YONEYAMA and further in view of Horie et al. teach all of the limitations of the parent claims. Additionally, Horie et al. teaches multiple instances

of the elapsed time at the output of the image sensor representing all member-pixel of the subset can be measured in the next cycle of the image capture (column 8, lines 58 *et seq.*).

**(10) Response to Argument**

**Regarding claims 1 – 2, 12 – 13, 24 – 25, and 27 – 28:**

**Appellant arguments:** The cited references, alone or in combination, do not disclose, teach, or suggest all of the features of the Appellants' claimed invention.

Specifically, the Appellants' independent claims include at least organizing the entire set of pixels into dynamic and static partitions, each respective partition having multiple pixels, mapping one or more of the dynamic and the static partitions to one or more of the member-pixels of the subset, respectively. Moreover, the Appellants' independent claims include reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions.

In contrast, clearly, Lee et al. in combination with Vernier do not disclose, teach or suggest at least the above argued features of the Appellants' claimed invention. Instead, Lee et al. simply disclose using X-Y addressable active pixel sensors, while Vernier merely disclose a slit camera with user defined scan lines (see Abstract of Vernier). Although Vernier discloses selected pixels being stored in a static portion of an image buffer and remaining pixels of the frame being stored in a dynamic portion of the image buffer, this is very different from the Appellants' independent claims.

For example, the independent claims include organizing the entire set of pixels into dynamic and static partitions, unlike Vernier, which uses selected pixels. Also, the independent claims include reading the static partitions once and the dynamic partitions multiple times, while Vernier does not specify different read frequencies of the static. Moreover, the independent claims include processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions and dynamic partitions, unlike Vernier, where the static and dynamic portions are related to scan lines for preventing overwriting issues.

Consequently, unlike the Appellants' independent claims, in Vernier, the selected pixels relate to a current position of the scan line and the static and dynamic portions relate to pixels of scan lines of moving objects for preventing overwriting of any pixels of the static portion to display a distorted image of the moving object (see FIGS. 3-5 and Abstract of Vernier).

Further, among other reasons, the rejections of the independent claims under 35 U.S.C. § 103(a) should be withdrawn because the Examiner used impermissible hindsight when the claims were rejected. It is well-settled law that the Examiner must have a reasonable basis for his conclusions. Namely, the Examiner cannot broadly mischaracterize the references and/or the Appellant's specification and/or claims and then use hindsight to arbitrarily assert an element in the reference is similar to an element in the claim to support his rejection, which is the case here. In re Oetiker, 977 F.2d 1443, 24 USPQ 2d 1443, 1446 (Fed. Cir. 1992). The Examiner is reminded that according to In re McLaughfin, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971 ) the

Examiner's obviousness rejection is only proper if it "does not include knowledge gleaned only from the Appellant's disclosure..." [emphasis added]. The Examiner clearly included knowledge gleaned only from the Appellant's disclosure when he rejected claims for obviousness.

Moreover, "[T]he genius of invention is often a combination of known elements which in hindsight seems preordained. To prevent hindsight invalidation of patent claims, the law requires some 'teaching, suggestion or reason' to combine cited references." Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579, 42 USPQ 2d 1378, 1383 (Fed. Cir. 1997). When the reference in question seems relatively similar "...the opportunity to judge by hindsight is particularly tempting. Consequently, the tests of whether to combine references need to be applied rigorously," especially when the Examiner ignores a teaching away, which is the case here. McGinley v. Franklin Sports Inc., 60 USPQ 2d 1001, 1008 (Fed. Cir. 2001). [emphasis added]. Since the Examiner's rejection is unquestionably based on hindsight, the rejection is improper and must be withdrawn. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.

Therefore, because Lee et al. in combination with Vernier do not disclose, teach or suggest all of the features of the Appellants' independent claims, Lee et al. in combination with Vernier cannot render the claims obvious.

**Examiner response:** The examiner would like to note that as discussed in the previous office action the secondary reference of Vernire (US patent No. 2004/0036778) teaches the idea of organizing the entire set of pixels into dynamic and static partitions

(figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320).

One of ordinary skill in the art at the time the invention was made would have found it obvious to incorporate the teachings of Vernier with the teachings of Lee et al. to speed up and reduce cost and time required of the photographing system by ignoring stationary portions of images after the initial image capture.

Also, in response to Appellant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in any sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the invention was made, and does not include knowledge gleaned only from the Appellant's disclosure, such a reconstruction is proper. In re McLaughlin, 443 F.2d 1392; 170 USPQ 209 (CCPA 1971). The reference of Vernire (US patent No. 2004/0036778) has a filing date of Aug. 22, 2002 which was before the filing date of the pending claimed invention.

**Regarding claims 3 – 9, 14 – 20, 23, and 26:**

**Appellant arguments:** Appellant argues that when Yoneyama is combined with Lee et al. and Vernier, the combined cited references still do not disclose, teach or suggest all of the features of the Appellants' claimed invention.

**Examiner response:** The examiner would like to note that as discussed in the discussion of claims 1 – 2, 12 – 13, 24 – 25, and 27 – 28 above Vernier does in fact teach the limitations of organizing the entire set of pixels into dynamic and static partitions (figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320). Hence, Yoneyama is only bought in for the limitations of claims 3 – 9, 14 – 20, 23, and 26 not taught by Lee et al. and Vernier as discussed in each individual claim. Appellant only argues that Yoneyama also fails to teach the argued limitations of claims 1 – 2, 12 – 13, 24 – 25, and 27 – 28 above.

For record, Yoneyama does in fact teach the limitation for each individual claim as discussed in claims 3 – 9, 14 – 20, 23, and 26 above in the grounds of rejection section.

**Regarding claims 10 - 11:**

**Appellant arguments:** Appellant argues that when Horie is combined with Lee et al. and Vernier, the combined cited references still do not disclose, teach or suggest all of the features of the Appellants' claimed invention.

**Examiner response:** The examiner would like to note that as discussed in the discussion of claims 10 - 11 above Vernier does in fact teach the limitations of organizing the entire set of pixels into dynamic and static partitions (figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320). Hence, Horie is only bought in for the limitations of claims 10 - 11 not taught by Lee et al. and Vernier as discussed in each individual claim. Appellant

only argues that Horie also to teach the argued limitations of claims 1 – 2, 12 – 13, 24 – 25, and 27 – 28 above.

For record, Horie does in fact teach the limitation for each individual claim as discussed in claims 10 - 11 above in the grounds of rejection section.

**Regarding claims 21 - 22:**

**Appellant arguments:** Appellant argues that when Yoneyama and Horie are combined with Lee et al. and Vernier, the combined cited references still do not disclose, teach or suggest all of the features of the Appellants' claimed invention.

**Examiner response:** The examiner would like to note that as discussed in the discussion of claims 21 - 22 above Vernier does in fact teach the limitations of organizing the entire set of pixels into dynamic and static partitions (figures 3 - 5 items 310 and 320), each partition having multiple pixels (figures 3 - 5 items 310 and 320); mapping one or more of the partitions to one or more of the member-pixels of the subset (figures 3 - 5 items 310 and 320; when Vernier is combined with Lee et al. a portion of 310 and/or 320 will fall within the subset of Lee et al.), respectively; and reading the static partitions once and the dynamic partitions multiple times and processing extra partition-read requests for creating a series of images corresponding in time to more frequently read partitions (paragraphs 0019 - 0021; also, figures 3 - 5 items 310 and 320). Hence, Yoneyama and Horie are only bought in for the limitations

of claims 21 - 22 not taught by Lee et al. and Vernier as discussed in each individual claim. Appellant only argues that Yoneyama and Horie are also fail to teach the argued limitations of claims 1 – 2, 12 – 13, 24 – 25, and 27 – 28 above.

For record, Yoneyama and Horie are do in fact teach the limitation for each individual claim as discussed in claims 20 - 21 above in the grounds of rejection section.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Usman Khan/

Examiner, Art Unit 2622

Conferees:

/Jason Chan/

Supervisory Patent Examiner, Art Unit 2622

/Lin Ye/

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